

Bristol 1854

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BRISTOL

# MINING SCHOOL.

BRISTOL:

M. MATHEWS, DIRECTORY OFFICE,

NARROW WINE STREET.

1854.



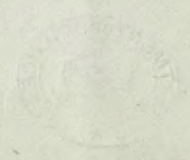
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## BRISTOL MINING SCHOOL.

SOME time ago the following letters appeared in the Bristol newspapers, to which the Committee of the Bristol Mining School beg very respectfully to solicit your attention; and also to the details of the plan for carrying out this object, as shown in MR. COSSHAM'S letter dated July 8th, 1854.

*(To the Editor of the Bristol Gazette.)*

Bristol, April 19, 1854.

SIR,

We beg to lay before your readers a proposition relative to the formation of a *Mining School* in Bristol, and particularly to call the attention of the coal proprietors and others interested in the formation of such an Institution, to the valuable letter (sent herewith) from Herbert Mackworth, Esq., the Governor Inspector of Mines for this District.

The necessity of a Mining School has long been felt here, especially in the difficulty so generally experienced by the proprietors of mines to obtain intelligent men to act in the capacity of bailiffs, overmen, deputies, &c.

The importance of this subject will be further seen when it is remembered that the coal trade forms such a very important branch of the industry of this country, and also one upon which others are very dependant.

It is estimated that the production of coal in Great Britain amounts to forty million tons a year, employing about 550,000 persons; and as the demand is constantly increasing it will much tend to the extension of this valuable trade if facilities are afforded for obtaining such an education as will fit the students for all the duties connected with mining, and by such means there can be no doubt the system of mining in this district will be improved; our proposal is to establish an Institution embracing the following advantages:—

1st.—A thorough Mining School where all the practical duties connected with mining, machinery, &c., shall be taught at the lowest possible rate, so as to enable the children of the better paid working men of this district to attend.

2nd.—Lectures and courses of instruction at convenient times to enable those who cannot study at such an Institution *entirely*, to obtain information on any particular branch of the subject.

3rd.—The bringing out of cheap maps, diagrams, books, &c. suitable for schools, and that will enable the teachers of our National, British, and other Day-Schools, in mining districts, to impart to the children a *general* knowledge of geology, mining, &c.

In reference to the *expense* of conducting such a school we refer to the letter of Mr. Mackworth, in which he supposes £400 a year will enable us to carry out this desirable object. But supposing (in order to be quite safe on this point,) we assume the expense to be £500 a year, including rent of rooms, salaries of teachers, books, and expenses of all kinds, we think there will be no doubt but the school will realise an income from the pupils of at least £250 a year, and there will thus be an equal sum to be furnished by voluntary contributions, and surely it is not too much to expect that such a small amount (as compared with the benefits to be realised) will be readily contributed by the important mining districts of Bristol, including South Wales and the Forest of Dean.

We earnestly invite the co-operation and assistance of all the coal proprietors of the above-named district, and also solicit any information and suggestion relative to the proposed undertaking, and as soon as a sufficient amount of subscriptions are guaranteed, and the general feeling of those connected with mining ascertained, a general meeting of those interested in the object will be called, and the details of the proposed school fully laid before the public.

We are, Sir, yours respectfully,

HANDEL COSSHAM,  
GEO. H. LEONARD,  
HENRY BENNETT,  
GEORGE BRAIN,

} Committee  
appointed by the  
Bristol Coal  
Masters.



(Letter from Herbert Mackworth, Esq.)

Clifton, April 4th, 1854.

Dear Sir,—With much pleasure I reply to the invitation of the committee of coal proprietors to assist in the establishment of a Mining School at Bristol, and I feel honoured by the confidence which the late meeting of the coal proprietors has been kind enough to express in my exertions. In the discharge of my official duties it is always my endeavour to promote, as opportunities permit, the interests of the coal trade, by spreading information, by referring to the best examples of practice, and by making suggestions when requested. I have in this manner arrived at the conviction that a fundamental remedy for numerous defects of practice is required, and that there can be no remedy better than a Mining School.

It is necessary for a person to visit those mining districts of England, where great natural difficulties in obtaining coal have had to be encountered to meet a large demand and increasing competition at the lowest possible price, to become aware of the numerous shortcomings which exist in the winning, working, and machinery of other districts, from the want of information, and the great additional cost thereby thrown on the extraction of each ton of coal, but by which no one,—neither masters, workmen, nor customers, are benefitted. In this district it is the winding engines and gear, the underground machinery and haulage, the working of the coal, and the ventilation, which require special attention; and if the unlimited demand for coal, the opening out of the mineral resources by railways, the depth of the pits, and the small part of the coal field hitherto explored, be taken into the account, there could not, evidently, be a fitter time for an effort to improve the capabilities, and increase the information respecting the best mines, of those persons who may be called to take charge, in various grades, of the collieries in Somersetshire, Gloucestershire, the Forest of Dean, and Monmouthshire.

The overmen and deputies, or bailiffs and under-bailiffs, are everywhere a hard-working, pushing class of men, very anxious to obtain information, provided it applies itself directly to their daily occupations, and the information which I propose should be given is of this very kind, both in the adult evening classes and in the day-schools, although in the latter more elementary knowledge must necessarily be added. Boys from 12 years upwards who can read, write, and do the rule of three, having, perhaps, already worked in the mines, will be taught the *science*



*of practice* divested of everything abstract, and consisting for the most part of those rules, by the application of which their labour may be improved and shortened. The heads of the studies will be writing, book-keeping, drawing (free-hand and by compasses), arithmetic, geometry, surveying, geology, metallurgy, mechanics, machinery, mining. As an example of the subdivisions of these subjects, the last head includes boring, sinking shafts, tubbing, laying out top and bottom roads, winding, pumping, haulage, timbering and walling, the various methods of working coal, and the cost of all the above; blasting, ventilation, gases, explosions, the strength of ropes, chains, and materials, their cost and application, accidents and subjects belonging to safety, &c. Surveying should be taught in the mine and in the field, on a system superior to that ordinarily in use; mechanics should be illustrated as far as possible by models; machinery and mining by obtaining access to the large works or the mines, in which respects Bristol is advantageously situated. The situation is central for the Forest of Dean and Monmouthshire, both by position and by a connexion in trade. It offers the advantages of museums, laboratories, models, the facility of obtaining lecturers, and the probability of a large influx of scholars unconnected with mining, who by assisting in the payment of the school expenses will enable them to be placed at the lowest figure. Thus it may gradually become a trade school without deviating at all from its strict object, and pupil teachers from the national or other schools, intended for places in the mining districts, may take advantage of the technical instruction sufficiently to render the teaching in their elementary schools more useful, and spread far and wide amongst the mining class the inclination and the means of becoming better acquainted with those operations on which their livelihood depends. It is not a little remarkable that nowhere in England, so far as I know, is the mechanic instructed in those simple rules by which he may avoid failures, shorten labour, raise his own value, and improve his art. As Bristol was the first town to hold a public meeting for the establishment of a trade school, I trust it will maintain its ancient credit for education, in being the first town in England to establish a school where the principles of coal-mining in all its branches will be practically taught. It is not in any way supposed that this instruction should qualify men for becoming at once bailiffs or under-bailiffs. Manual labour will form no part of the course now proposed. For this he must go back to the mine, and the handicraft of the miner must be learnt by the sweat of his brow, but his



superior intelligence will soon mark him out for gradual promotion ; and having learnt to understand every branch of his trade, he will, when advanced to positions of trust, become a very superior and efficient overman. Many of those in the adult class will possess the advantages of practice and experience, and it is, therefore, to this class that we must probably devote the most attention, in order to obtain the earliest evidence of the success of the school.

If the cost of education is fixed at £2 per year, it will be within the reach of any of the mining classes who have an earnest desire to improve, and a three years' course will suffice for obtaining all the information which the school can offer. Examinations may be held annually, and money and other prizes and certificates of merit or of approval granted. For accomplishment of these objects, a fund for the purchase of models and apparatus, will be required, and a sum of at least £400 per annum for rent, lighting, and heating, two masters' salaries, books and apparatus. The Government are inclined to guarantee, when desirable, the salaries of the masters for a short period, to find diagrams, prepared by eminent men, at half cost, philosophical apparatus at one-third cost, and to pay salaries to pupil teachers. With the exception of the first I think these offers may advantageously be accepted. The Mining School can place itself in connection with the School of Mines in Jermyn-street, of which Sir Henry Delabeche is the director, so as to take advantage of its experience and assistance, and to open out its exhibitions, and other means of higher instruction, to the more promising pupils, without the school being in any way restricted in return.

In choosing a building it is advisable to make provision for 200 pupils in one school-room, for a lecture room of nearly equal size attached to it, with a room for drawing and preserving models, and a fourth room for laboratory and workshop ; convenience for washing being also provided near the entrance.

The principal difficulty which presents itself to me is that of obtaining a suitable head-master. The second, or mathematical master, may be advantageously procured from the Greenwich Hospital schools, at a salary of about £80 per year. The head-master must necessarily be acquainted with practical sciences, but the knowledge of mining, of the kind which I propose should be taught, is confined to very few. I am now preparing a complete syllabus of the course of instruction for the approval of the committee. When they have selected a

proper head-master, I shall be ready, as far as lies in my power, to afford him the means of completing his information, and to deliver a course of lectures on the more technical subjects.

You will perceive that in this outline of the advantages and instruction to be derived from the Bristol Mining School, I have endeavoured to adopt the views of the proprietors and managers of collieries in the South of England and Wales, so far as I have been able to ascertain them. From the enlightened opinions of these gentlemen, from the scarcity of competent overmen or bailiffs, from the increasing depth, extent, and difficulty of coal-workings, I feel confident that the committee will meet with support from all parts of these three counties. We need not fear inadequate funds. It depends, however, on the extent of the contributions on the part of the proprietors, whether the head pupils in each yearly examination may be rewarded by scholarships adequate to support them during the term of study, and whether the best masters and mode of instruction are employed. Every subscriber of £10 annually may be allowed to nominate a free pupil. The most material aid which can be afforded is to send us pupils; when the mining classes have found the benefit of, and the way to, REAL instruction, they will seek it for themselves.

I remain, Sir, your's very truly,

HERBERT MACKWORTH.

Handel Cossham, Esq., Shortwood-lodge.

Shortwood Lodge, near Bristol,

July 8, 1854.

The Committee of the Bristol Mining School, have now great pleasure in laying before the public generally, and the Colliery Proprietors of this district (including South Wales, the Forest of Dean, and Somersetshire) in particular, the details of the plan by which they propose to carry out this desirable object.

The Committee have been at considerable pains to (as far as possible) meet the views and wishes of the mining interests *generally* of this important district: and in order to make the school available for the more distant parts of the district, it has been thought necessary that *board* and *lodging* should be provided for those pupils who may need accommodation of this kind. It will be seen that the following table provides for this.



1. *That each Colliery contributing 10l. 10s. a year shall have the privilege of sending one pupil, who shall be provided with board, lodging, and a mining education.*

2. *In addition to the above, each pupil to contribute 5s. per week.*

3. *Should any Colliery Proprietor contributing 10l. 10s. a year, wish to send pupils who may not need board and lodging, but simply a mining education, three pupils may be sent instead instead of one. Such pupils to contribute 1s. each, per wee k.*

4. *The public generally will be at liberty to send pupils, who will receive the full advantages of the school, by the payment of 25l. per annum, for board, lodging, and instruction.*

In the above rates the committee have endeavoured to place the charge of admissions as *low* as possible, due care being taken that the school shall be made in the end as near self-supporting as possible. Much of the efficiency of the school will depend upon its being taken up **GENERALLY**, as it cannot be done on the above terms, except on a large scale.

As a further proof of the importance of this subject, the committee would refer to a resolution proposed at a Mining Conference, held in London in May last, which was attended by deputations from nearly all the mining districts of the country.

**RESOLVED—**

“That it is the opinion of this meeting that a large number of accidents in collieries arise from the ignorance and recklessness of the miners themselves: and that increased education would greatly tend to decrease the number of accidents arising from such causes; \* \* \* \* \* and in the opinion of this meeting, the owners of collieries, should in connection with the workmen, make such arrangements in a financial point of view, as will accomplish this desirable object”. It was also further—

**RESOLVED—**

“That this meeting is of opinion it would be of essential service, in the future management of mines, and consequently have a tendency towards the prevention of accidents, if a Central Mining School, or College of a practical nature, was established in some convenient

and suitable colliery district, with branches therefrom and connected therewith, for the education of mining engineers and other officers or subordinate persons to be entrusted with the management and conducting of the mines of this country. And that the committee now sitting on accidents in mines be solicited to take this subject into their serious consideration, with a view of recommending the Government to afford such aid as they may deem advisable and requisite to establish and support so necessary and laudable a measure."

The committee would also refer with pleasure to the part of the Report of the Select Committee of the House of Commons, just printed, on the subject of education, which says:—"For the overlookers and officers of the mines, additional means of education are beginning to be provided.

"In Newcastle a Mining School is established, the good effects of which it is stated are already felt; and your committee cannot too thoroughly recommend the establishment of similar institutions in other districts, at which the branches of science bearing upon mining should be taught."

"Facilities would thus be afforded for imparting to the superintendents or overlookers, upon whom the daily and hourly conduct of the mines necessarily falls, an amount of scientific information which could not fail to induce greater vigilance in carrying out rules and precautions, obvious enough to scientific men, but which it is difficult, if not almost impossible, to have faithfully realised in practice by those who, however willing to do their duty, do not fully understand or appreciate the value of such rules and precautions. Your Committee believe that the increased scientific information thus afforded to this class of men (the overlookers) would prove an important step towards lessening the number of accidents in coal mines, and more especially those arising from defective arrangements of ventilation; and they would urge upon Government to foster, by grants in aid, the establishment and maintenance of mining schools in the large mining districts throughout the country."

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The committee therefore hope that a generous and hearty response will be made to this effort for the improvement of the mining interests.



Any support the *public* generally may favour the committee with will be gratefully received and acknowledged; and as the interests to be benefitted are so important to the county at large, it is hoped that a very general co-operation will be manifested with the committee. Some delay will be unavoidable before the arrangement can be completed so as to open the school, as it will be necessary to send the teachers to London to obtain the necessary qualifications; and the committee are happy to say, that (on the part of the Government) Dr. Lyon Playfair has promised to assist the committee in this important part of their efforts, by providing any teachers the committee may select, with the necessary means for obtaining a proper training. The committee are, however, unable to proceed further with the object, until it is seen to what extent they may look for support from the surrounding districts; and it is hoped, therefore, that no time will be lost in communicating with the committee on the subject, that a list of the subscribers may be published, and the necessary means taken to open the school.

On behalf of the Committee of the Bristol Mining School,

HANDEL COSSHAM, *Secretary*.

